

STATE OF ALASKA

Jay S. Hammond, Governor

Annual Performance Report for

HARVEST ESTIMATE OF SELECTED FISHERIES
THROUGHOUT SOUTHEAST ALASKA

by

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ALASKA DEPARTMENT OF FISH AND GAME

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RESEARCH PROJECT SEGMENT

State: ALASKA Name: Sport Fish Investigations
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Project No.: F-9-13

Study No.: G-I-Q Study Title: INVENTORY & CATALOGING

Job No.: G-I-Q-A Job Title: Harvest Estimate of Selected
Fisheries Throughout Southeast
Alaska

Cooperator: Donald L. Siedelman

Period Covered: July 1, 1980 to June 30, 1981

ABSTRACT

The Ketchikan Marine Harvest Program is a continuing program which began in 1960. The program was conducted from May 16 through September 14 in 1980.

Technicians interviewed 5,015 anglers who fished 29,260 hours to harvest 618 chinook, Oncorhynchus tshawytscha (Walbaum); 733 coho, O. kisutch; 1,442 pink, O. gorbuscha; 5 chum, O. keta; and 1 sockeye salmon, O. nerka. An additional 299 Pacific halibut, Hyppoglossus stenolepis; 20 trout, Salmo species; and 1,721 other saltwater bottom fish were harvested.

The Ketchikan Marine Harvest Program was weighted and expanded by applying the Statewide Harvest Program's man-days (30,907) for the Ketchikan area to the harvest program. The expanded estimated angler effort for Ketchikan was 180,188 hours to harvest 17,503 salmon (3,815 chinook, 4,764 coho, 8,887 pink, 31 chum, and 6 sockeye). The harvest estimates for other species were; 1,843 halibut, 308 trout, and 10,606 bottom fish.

The Ketchikan King Salmon Derby (May 24, 25, 26, 31 and June 1, 7 and 8) expanded effort was 29,275 hours to harvest 828 chinook salmon.

The coho salmon seasonal catch per unit of effort (CPUE) of .026 fish per angler-hour was the highest on record and resulted in an expanded harvest estimate of 4,764 coho.

The Ketchikan Marine Harvest waters were divided into three areas. Harvest and effort was determined for each area. Special emphasis was directed south of Ketchikan to determine angler use in the saltwater areas adjacent to the proposed U.S. Borax molybdenum mine.

The Marine Harvest Program should be continued as needed to assist in evaluating angler use and harvest trends.

BACKGROUND

The Ketchikan Marine Harvest Program is a continuing program which began in 1960. This program has been periodically conducted to monitor effects of regulatory measures, harvest levels, and harvest rates.

Angler pressure and demand for fish in the Ketchikan saltwater areas have been increasing. User group conflicts and allocation problems have developed between commercial and sport fishermen. These problems, combined with low stock levels, have necessitated periodic changes in the sport fish salmon bag and size limit, closed waters and fishing seasons. The Ketchikan area hatchery production to date has not met or contributed to the sport angler recreational requirements.

Recreational activities will further increase if the U.S. Borax molybdenum mining project commences. Both Ketchikan and the mining community sport anglers will require assessing, as well as their impacts on salmon stock stability.

RECOMMENDATIONS

Research

1. The Ketchikan Marine Harvest Study should be continued on an intermittent basis to determine the effectiveness of regulatory measures and changes in effort.
2. Continue the Ketchikan Marine Creel Census program into the first 2 weeks of September. September appears to provide the greatest coho salmon harvest.
3. A harvest program should be designed around the artificial stock's contribution to the sport fishery and also aid in evaluating the Deer Mountain (State) and Whitman Lake (private) hatcheries.
4. If the proposed Borax mining community is established, a sport salt-water creel census should be conducted within their angling waters.
5. The Ketchikan Marine Harvest program could be reduced to one person. The 1979 creel census data was collected by two technicians. An analysis of their data, as collected individually, indicated that the CPUE for chinooks was .019 and .017 fish per angler-hour, respectively, and the CPUE for coho was .008 and .007, respectively. Similarly, the 1980 data collected by two technicians indicated a chinook CPUE of .021 and a coho CPUE of .026. Analyzing the data collected by one person for 1980 provided a chinook CPUE of .023 and .035. A difference was noted in the 1980 CPUE for coho. This differ-

ence may have been from the inclusion of chinook salmon derby hours into the analysis. During the derby, few coho are harvested. The majority of coho were caught in early September.

Management

Saltwater sport angling regulatory measures within the Ketchikan area should not be modified. The Marine Harvest Program should be expanded, though monies have not been appropriated. Artificial releases of coho and chinook salmon contributions to the angler's creel should be assessed. A program or programs designed to evaluate artificial enhancement would assist in determining those stock's contributions to the sport anglers plus production potentials of State and private hatchery facilities.

OBJECTIVES

1. Determine the saltwater boating angler effort and catch in the Ketchikan area sport fishery.

TECHNIQUES USED

The Ketchikan Marine Harvest Study program was conducted from May 16 through September 14, 1980. Anglers were interviewed as they returned to Clover Pass Resort, Bar Harbor, Knudson Cove, and Mountain Point docks. During each week, 3 weekdays and both weekend days were sampled to collect angler effort and harvest data. Each party contacted was interviewed to determine the number of anglers aboard, the amount of time spent fishing, the number and species of fish kept, where the fish were caught, and whether or not the fish were tagged.

Fishing effort was divided between salmon and bottom fishing. Each day was sampled on one of two chosen shifts randomly selected for weekdays. Weekend days were sampled, one day covering the morning period and one day in the evening time frame.

The morning shift ran from 0730-1400 hours and the evening periods ran from 1400-2230. The evening shifts were conducted more frequently. On August 29, 1980 the evening shift was shortened (1400-2200) due to the decreased amount of daylight.

Standard statistical sampling estimation techniques as found in Cochran (1977) were used to compute the CPUE from the Ketchikan Harvest Study program. Estimation techniques as described in Mills (1979) were used to compute total effort.

A greater effort was made to sample the Ketchikan King Salmon Special Derby Days. Technicians sampled from 0800-2230 on May 24, 25, 26, 31 and June 1, 7 and 8.

Scale and gonad samples were collected from each chinook salmon examined. Both testes lobes were collected from male chinook salmon and a sample of each female chinook salmon egg skein was collected. All samples, along with physical measurement data, were forwarded to the chinook salmon studies' project leader for his analysis.

This was the second year (1979 and 1980) that a total harvest and effort estimate was made for the Ketchikan area. The seasonal marine harvest was estimated by multiplying the estimated Ketchikan Marine Harvest Study seasonal CPUE times the Statewide Harvest Questionnaire seasonal angler effort.

The total estimated angler-hours expended in the Ketchikan area was determined by applying the mean total angler-hours expended by each angler in the Ketchikan Marine Harvest Study program to the Statewide Harvest Study Questionnaire total angler days.

FINDINGS

During the creel census, anglers were interviewed to obtain fish harvest and effort data from the Ketchikan saltwater sport fishing areas (Figure 1). Technicians interviewed 5,105 anglers who fished 29,260 hours. The anglers interviewed harvested 618 chinooks, 733 coho, 1,442 pinks, 5 chum, and 1 sockeye salmon. In addition, 299 halibut, 20 trout and 1,721 other saltwater bottom fish were caught (Table 1). To maintain consistency with past annual harvest data, all chinook salmon less than 711 mm (28 in) were excluded from Table 1. The chinook harvest by size and times of harvest is shown in Table 4. The 1980 CPUE of .018 for chinook salmon over 711 mm was below the mean CPUE of .024 for the years 1967-1979 (Table 2). Including the chinook salmon less than 711 mm into the 1980 harvest of chinook over 711 mm, the CPUE was .021. Comparing the 1979 and 1980 data for salmon indicates that the CPUE for chinooks remained essentially the same while the 1980 CPUE for coho and pinks far exceeded the 1979 levels (Tables 1 and 3).

The Ketchikan saltwater boat effort was weighted and expanded by applying the Statewide Harvest program's estimate of man-days (30,907) for the Ketchikan area to the Ketchikan Marine Harvest program average angler trip for derby days (6.70 hours) and seasonal creel census days (5.83 hours). The expanded estimated angler effort in the Ketchikan area was 180,806 hours to catch 17,503 salmon. An estimated 3,815 chinook, 4,764 coho, 8,887 pink, 31 chum and 6 sockeye salmon were harvested. The harvest estimates for other species were; halibut, 1,843; trout and char, 308; and other fish (rockfish, cod, etc.), 10,606.

The expanded angler effort of 180,188 hours was the third largest effort since 1967 and was exceeded only by the effort estimates for 1972 (184,487 hours) and 1977 (204,974 hours) (Table 2). This was the second season the Ketchikan Marine program utilized the Statewide Harvest program to expand angler effort and harvest.

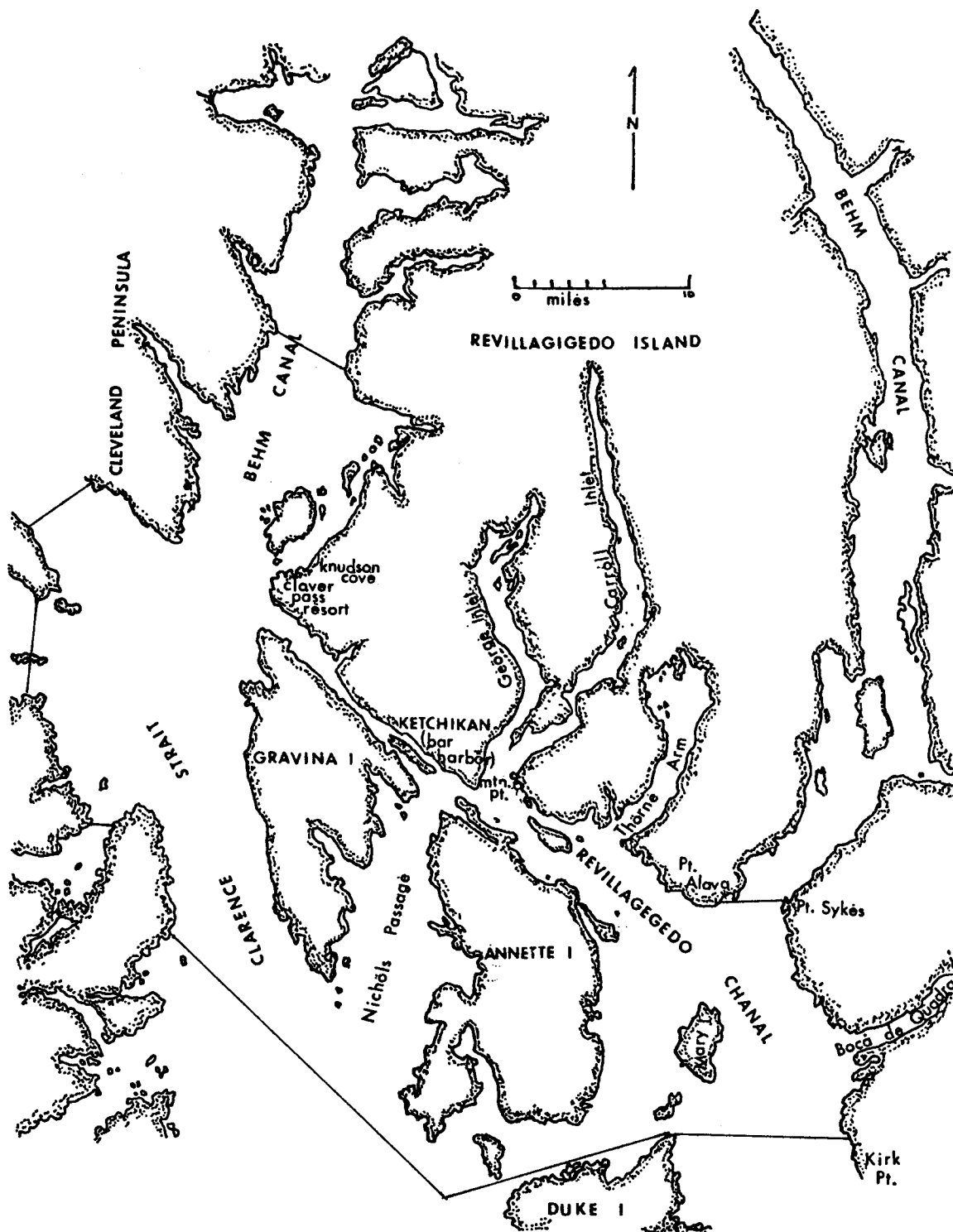


Figure 1. The Ketchikan Marine Harvest Sampling Area 1980.

Table 1. Bi-weekly effort, catch and CPUE* by species for the Ketchikan Marine Harvest Program during 1980.

	Bi-weekly Periods									Total	
	1** 5/15-6/1	2** 6/2-6/15	*** Derby	3 6/16-6/29	4 6/30-7/14	5 7/14-7/27	6 7/28-8/10	7 8/11-8/24	8 8/25-9/7		9 9/8-9/14
Boats	87	155	734	223	232	195	195	157	170	37	2,221
Anglers	184	332	1,725	498	527	452	524	341	347	86	5,015
Total Hours.	729	1,621	13,366	2,714	2,377	2,069	2,262	1,701	2,038	384	29,260
Salmon Hours	557	1,271	12,295	1,846	1,869	1,726	1,860	1,160	1,789	206	24,578
Bottom Fish Hours	172	350	1,071	868	508	343	402	541	249	178	4,682
Chinook \geq 711 mm	24	31	396	31	23	19	6	7	1	0	538
CPUE	.033	.020	.030	.011	.010	.009	.003	.004	+	-	.018
Shakers****	7	0	31	55	33	67	31	18	14	12	268
CPUE	.010	-	.002	.020	.014	.031	.014	.010	.007	.031	.009
Coho	0	5	2	53	85	133	124	46	280	44	772
CPUE	-	+	+	.019	.035	.061	.055	.030	.137	.115	.026
Pinks	0	2	0	23	146	448	536	171	116	2	1,444
CPUE	-	+	-	.008	.061	.210	.236	.098	.057	-	.049
Chum	1	0	0	3	0	0	0	0	1	0	5
CPUE	+	-	-	+	-	-	-	-	+	-	+
Sockeye	0	0	0	1	0	0	0	0	0	0	1
CPUE	-	-	-	+	-	-	-	-	-	-	+
Halibut	13	1	130	44	29	21	13	29	16	3	299
CPUE	.018	+	.010	.016	.012	.010	.006	.017	.008	+	.010
Trout	1	0	2	2	1	0	2	10	2	0	20
CPUE	+	-	+	+	+	-	+	.006	+	-	.001
Others	42	51	458	337	154	84	215	258	83	39	1,721
CPUE	.058	.031	.034	.123	.064	.039	.095	.147	.041	.102	.058

* Includes total hours fished.

** Derby data excluded.

*** Derby Days--May 24, 25, 26, 31, June 1, 7 and 8.

**** Chinook salmon less than 711 mm (shakers) had to be released between June 15 and September 14, 1980.

Table 2. Annual catch estimates for sport harvest chinook salmon during the Ketchikan Marine Harvest Program, 1967-1980.

	<u>1967</u> <u>5/15-</u> 8/20	<u>1968</u> <u>5/20-</u> 8/25	<u>1969</u> <u>5/19-</u> 8/24	<u>1970</u> <u>5/25-</u> 8/30	<u>1971</u> <u>5/17-</u> 9/5	<u>1972</u> <u>5/22-</u> 6/4	<u>1973</u> <u>5/14-</u> 9/2	<u>1977</u> <u>5/15-</u> 9/3	<u>1979</u> <u>5/15-</u> 8/31	<u>1980</u> <u>5/16-</u> 9/14
Boats	4,089	3,319	4,151	1,488	6,764	...	7,924	15,453	10,290	13,688
Anglers	7,281	8,259	10,378	3,486	17,130	16,704	19,925	36,906	23,358	30,907
Hours	55,737	57,008	70,954	26,127	148,718	184,487	52,877	204,974	131,104	180,806
Chinook	594	1,667	2,385	546	2,563	7,575	3,585	1,712	2,006	3,815
CPUE	.011	.029	.034	.021	.017	.041	.068	.008	.015	.021

Table 3. Bi-weekly effort, catch and CPUE* by species for the Ketchikan Marine Harvest Program during 1979.

	Bi-weekly Periods								Total	
	1** 5/15-5/26	2** 5/27-6/9	3 6/10-6/20	*** Derby	4 6/24-7/7	5 7/8-7/21	6 7/22-8/4	7 8/5-8/18		8 8/19-8/31
Boats -	114	157	253	886	271	286	295	259	229	2,750
Anglers	233	342	545	2,084	603	642	682	606	496	6,233
Total Hours	1,095	1,604	3,283	13,966	3,566	3,334	3,366	3,258	2,841	36,313
Salmon Hours	980	1,406	2,671	13,446	2,790	2,567	2,673	2,389	1,706	30,628
Bottom Fish Hours	115	198	612	520	776	767	693	869	1,135	5,685
Chinooks	28	54	85	389	55	21	30	8	10	680
CPUE	.056	.034	.026	.028	.015	.006	.009	.002	.004	.019
Shakers****	89	195	195	1,311	123	64	84	80	184	2,325
CPUE	.081	.122	.059	.094	.034	.019	.025	.025	.065	.064
Coho	0	0	5	3	18	40	69	56	84	275
CPUE	-	-	.002	+	.005	.012	.021	.017	.030	.008
Pinks	0	0	1	0	55	182	413	160	63	874
CPUE	-	-	+	-	.015	.055	.123	.049	.022	.024
Chum	0	0	0	0	1	2	5	0	5	13
CPUE	-	-	-	-	+	+	.001	-	.002	+
Sockeye	0	0	0	0	0	0	0	0	0	0
CPUE	-	-	-	-	-	-	-	-	-	-
Halibut	3	12	46	72	45	45	65	47	61	396
CPUE	.003	.007	.014	.005	.013	.014	.019	.014	.021	.011
Trout	2	0	22	4	4	5	0	10	2	49
CPUE	.002	-	.007	+	.001	.002	-	.003	.001	.001
Others	138	120	282	342	357	357	403	345	345	2,689

* Includes total hours.

** Derby data excluded.

*** Derby days--May 26-28, June 2, 3, 9 and 10.

**** Chinook salmon less than 711 mm in length.

During 1979 and 1980, anglers were specifically asked to separate hours fished for salmon from bottom fish. The 1980 CPUE was calculated using two methods (Table 4):

1. Used all hours fished for salmon and trout to compute those species' CPUE and all hours fished for halibut and other bottom fish from computing those species' CPUE.
2. Utilized hours fished for both salmon and bottom fish to compute CPUE, as was done with all previous years.

Though the first method provides a more accurate CPUE for salmon or bottom fish, it disregards the fact that some bottom fish are incidently harvested through salmon fishing and some salmon are harvested while bottom fishing.

During 1979 and 1980, the surveyed Ketchikan marine sport fishing waters were separated into three areas (Figure 2). Both 1979 and 1980 indicate Area II as having 88.5% and 73.4% of the seasonal fishing effort, respectively. Though a majority of the chinooks and cohos were harvested in Area II, Areas I and III had a ratio of boats to salmon harvested equal to or better than Area II. The heavy angler concentration in Area II is derived from the State's Knudson Cove Harbor and Clover Pass Resort (private) fishermen. Both facilities are in a weather protected area which also contributes to the area's increased angler pressure (Figure 2, Table 5).

Area III was subdivided during 1980 to further pinpoint Ketchikan angler use. The 1979 Marine Harvest data were also analyzed to obtain angler information from this sub-area. The sub-area is adjacent to a proposed U.S. Borax mining community.

Data collected during 1979 and 1980 are presented in Table 5. During 1979, 1.6% of the Ketchikan anglers fished within the Area III subsection and 2.4% during 1980.

If the U.S. Borax molybdenum mining community is placed either into Wilson Arm or Boca de Quadra, their potential sport fishermen will be competing with Ketchikan anglers for recreational space and fish. Both Ketchikan anglers that traditionally fish this subsection and the added mine related anglers will experience a decrease in their salmonid CPUE. The local spawning stocks migrating through this subsection's waters are presently reduced. Added angler pressures and harvest will create further sport harvest restrictions, reduced bag limits, less fishing time and more closed waters. Further fishery curtailments to the Ketchikan base sport anglers will create greater demands for a share of the area's commercial harvest.

Angler harvest success for chinooks and cohos were also broken down into percentages for landing of one, two, and three or more salmon (Table 6). The success rate was 10.6% for fishermen landing one chinook and 5.8% for one coho. Anglers who landed two or more salmon were more successful in landing cohos than chinooks.

Table 4. Comparative methods used for computing CPUE for the Ketchikan Marine Harvest Program during 1980.

Species	Number Caught	CPUE	
		Salmon or Bottom Fish Hours	Total Hours
<u>Seasonal Harvest</u>			
All chinooks	618	.025*	.021
Chinooks ≥ 7 mm	538	.022*	.018
Chinooks < 7 mm	80	.003*	.003
Coho	772	.031*	.026
Pinks	1,444	.059*	.049
Chum	5	+	+
Sockeye	1	+	+
Shakers***	268	.001*	.009
Halibut	299	.064**	.010
Trout	20	.001*	.001
Others	1,721	.365**	.058
<u>Derby Harvest</u>			
All chinooks	448	.018*	.015
Chinooks ≥ 711 mm	396	.016*	.013
Chinooks < 711 mm	52	.002*	.002

* Salmon hours.

** Bottom fish hours.

*** Chinook salmon less than 711 mm (shakers) had to be released between June 15 and September 14, 1980.

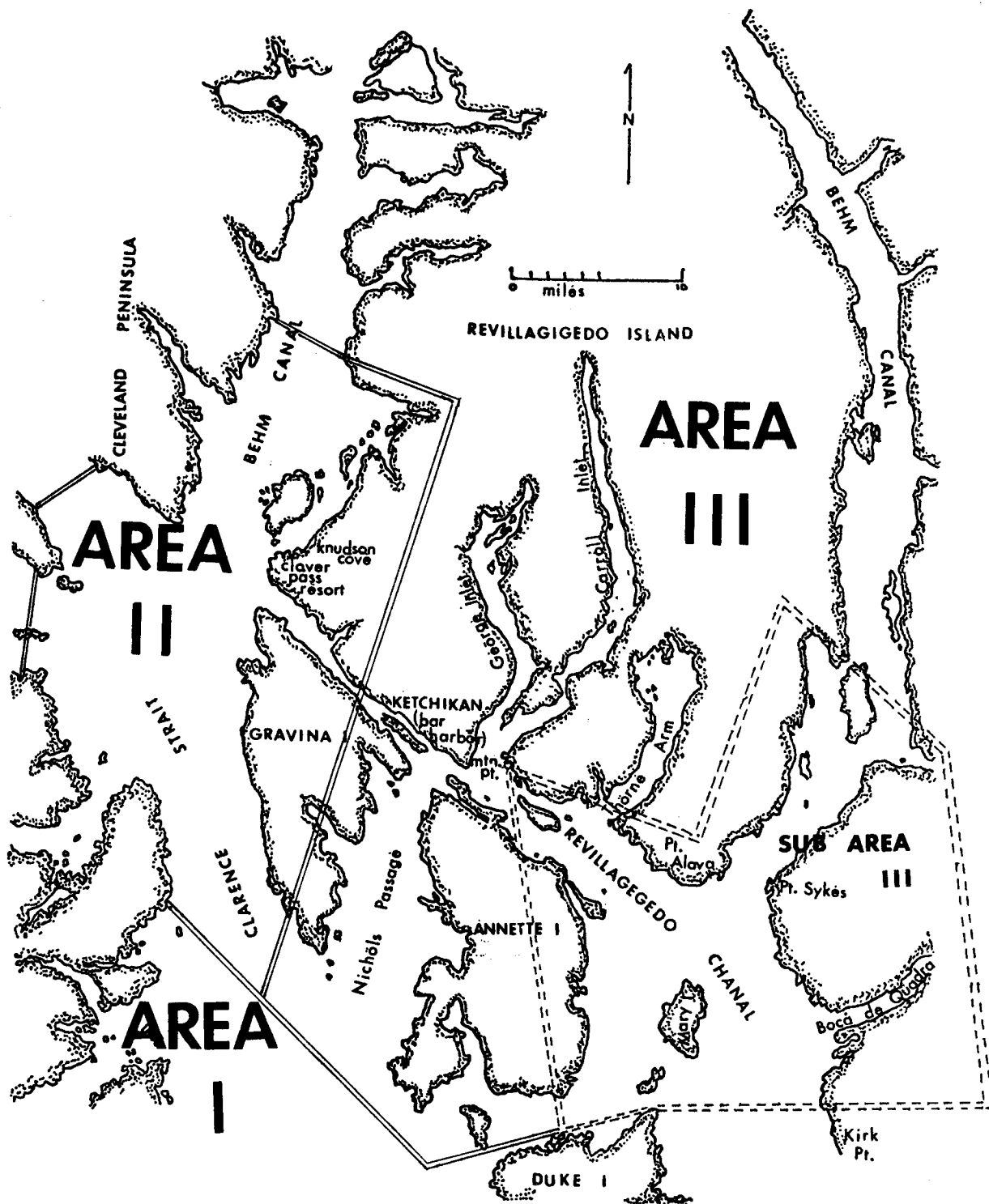


Figure 2. The Ketchikan Marine Harvest Sub-sampling Areas 1980.

Table 5. Ketchikan marine area angler use and harvest for chinook and coho salmon during 1979 and 1980.

Area	% Area Use	Harvest %	
		Chinook	Coho
<u>1979</u>			
I	1.1	4.6	2.2
II	88.4	75.5	82.9
III	8.9	14.5	13.1
Subarea III	1.6	5.4	1.8
<u>1980</u>			
I	1.1	3.1	1.6
II	73.4	56.7	90.0
III	23.1	33.8	7.2
Subarea III	2.4	6.4	1.2

Table 6. Percent of successful anglers from the Ketchikan Marine Harvest Program during 1980.

No. Salmon in Creel Harvest	Angler		% Success
	Total	Successful	
<u>Seasonal Chinook</u>			
1	3,290	140	4.3
2	3,290	10	0.3
3	3,290	2	0.1
<u>Derby Chinook</u>			
1	1,725	392	22.7
2	1,725	23	1.3
3	1,725	6	0.3
<u>Seasonal and Derby</u>			
1	5,015	532	10.6
2	5,015	33	0.7
3	5,015	8	0.2
<u>Coho</u>			
1	5,015	290	5.8
2	5,015	104	2.1
3+	5,015	71	1.4

The Ketchikan King Salmon Derby

The Ketchikan King Salmon Derby ran 7 days (three consecutive weekends) during 1980. Derby dates were May 24, 25, 26, 31 and June 1, 7 and 8.

The derby is held on Memorial Day weekend and during one or both following weekends. This year, as well as in past years, the peak chinook salmon abundance appears to have occurred during the derby. Because of the peak migration coinciding with the chinook salmon derby, the heaviest sport fishing pressure occurs. The anglers' main objective during the derby is to catch large chinooks to compete for numerous prizes. During the derby, both sport and sport/commercial (hand and power troll) fishermen are allowed to fish.

The chinook harvest during the derby was 448. The hours expended to harvest one chinook was 29.8 for a CPUE of .034. This year, unlike in recent years, the Board of Fisheries allowed anglers to retain chinook salmon less than 711 mm from April 1 through June 14. After extracting chinooks less than 711 mm, 396 were realized from 13,365 fishing hours. The CPUE for chinooks larger than 711 mm was .030 or 33.8 hours were required to harvest one chinook. The mean CPUE for the past years was .025. As shown in Table 7, this year's harvest was within the range of the past years' mean (see also Figure 3).

To bring the 1980 CPUE during the derby closer to the mean of past years and nearer the surrounding 4-week period of the 1980 derby, all half-hour trips and anglers coming in with a large chinook salmon for weighing were placed under the title of incomplete trip. All evening returning anglers (6:00 p.m. or later) were considered as completed trips.

After subtracting the incomplete angler trip hours from the total hours fished, there were 12,467 fishing hours providing a total harvest of 303 chinook salmon greater than 711 mm. This method provided a CPUE of .024 which made the 1980 CPUE more comparable to the mean (.024) for past years' derbies and the surrounding 4-week period.

The maximum daily chinook harvest (88) for all 7 derby days occurred on June 8, while the minimum daily harvest (49) was on May 31 (Table 8). The daily CPUE data indicated that the maximum CPUE occurred on June 7 and the minimum CPUE occurred on May 26 (Figure 4).

The percentage of successful anglers catching one chinook for the 7-day period was 22.7%; for two chinook, 1.3%; and for three chinook, 0.4%. Fishermen who caught two or more chinook were not included in the lower catches (Table 8).

The best CPUE was from Area I. This area was the most productive with a boat-to-chinook-harvested ratio of 1.79:1 (Table 9). During the Ketchikan King Salmon Derby, the district was broken into three areas as during the general season (Figure 2). Area II had the majority of fishing boats and Area III had the greatest number of chinooks caught.

Table 7. Summary of creel census data from Ketchikan Special Derby Days, 1960-1980.

	1960	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1977	1979	1980
	Analysis Codes													
	1,2	3	1,2	4	4	3	3	3	3	4	4	3,5	3,5,6	3
Censused Boats	657	109	...	83	189	189	259	290	195	...	...	936	886	734
Estimated Boats	...	164	...	334	694	945	933	790	1,125	...	...	3,370	1,807	1,497
Censused Anglers	1,442	255	938	169	207	457	655	680	519	...	...	2,180	2,084	1,725
Estimated Anglers	...	383	1,407	681	760	2,285	2,360	1,425	2,995	...	...	7,848	4,240	3,510
Censused Hours	1,180	2,307	...	1,323	1,583	3,709	5,056	6,064	4,729	...	...	16,123	13,967	13,366
Estimated Hours	...	3,461	...	5,335	5,814	18,545	18,220	11,642	27,286	...	...	58,042	30,590	29,275
Censused Chinooks	84	111	169	57	55	133	157	143	138	...	...	320	389	396
CPUE Chinooks \geq 28"	...	.033	...	...	...	.027	.023	.022	.019	...	...	.020	.028	.030
Estimated Chinooks	...	167	253	230	202	665	565	427	796	...	...	...	813	828
CPUE	.071	.048	...	.043	.035	.036	.031	.024	.029	.028	.029	...	.027	.028
% Chinooks \geq 28"	...	68%	65%	...	...	76%	73%	92%	64%	...	...	100%	100%	100%

- Analysis Codes: 1) From D-J Report of Derby.
 2) Reliability questionable due to sampling procedure or data workup.
 3) Computed from raw data.
 4) Estimate made by using bi-weekly summaries from the D-J reports. Data includes non-derby fishermen and days.
 5) Minimum chinook salmon length was 28 inches.
 6) Expanded data derived from State-wide Harvest Questionnaire.

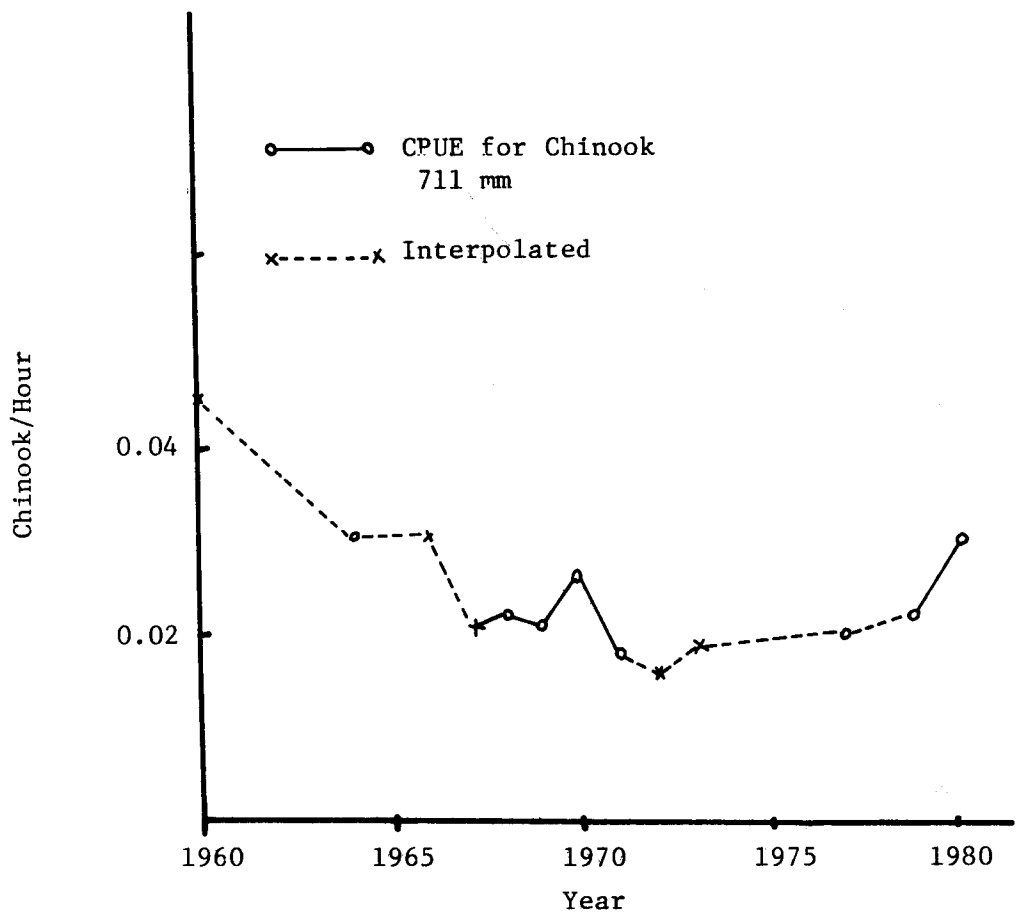


Figure 3. Chinook Salmon Catch Per Unit of Effort by Ketchikan Derby Fishermen, 1960-1980.

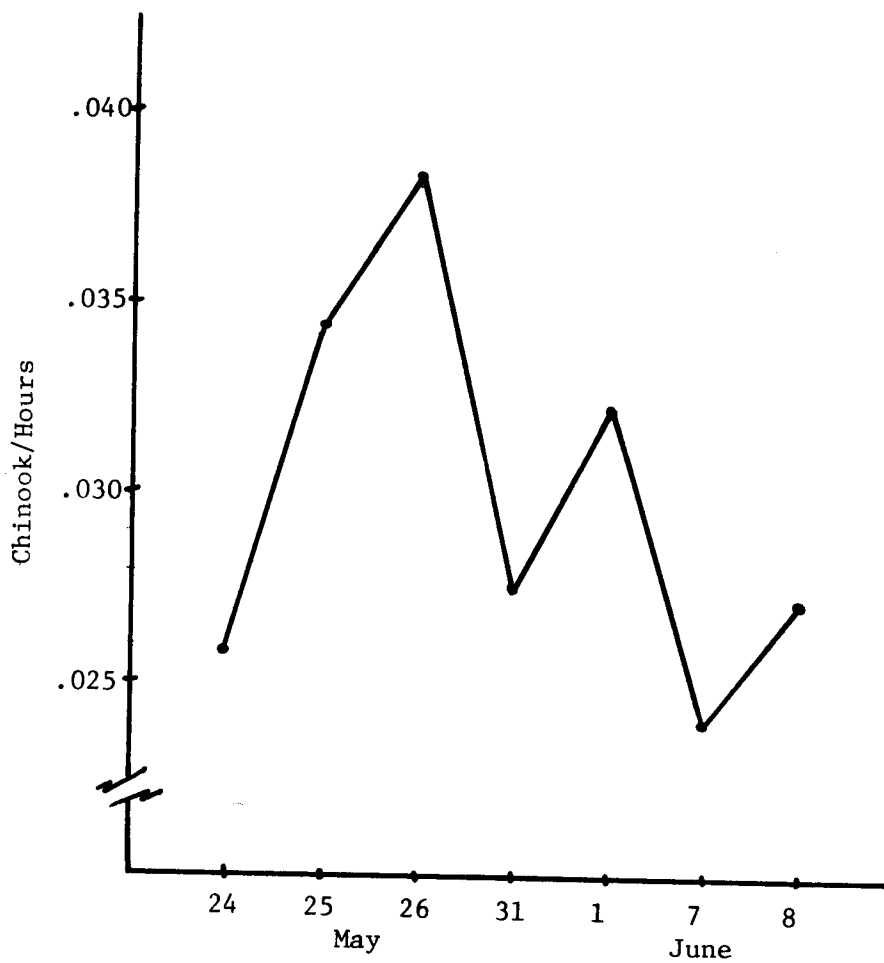


Figure 4. Ketchikan King Salmon Derby CPUE by Day
1980

Table 8. Daily effort and harvest for Ketchikan King Salmon Derby, 1980.

Date	Boats	Anglers	Hours		Total Chinooks	CPUE*	Hours/Chinook
			Salmon	Bottom Fish			
5/24	97	244	1,591	185	69	.039	25.8
5/25	99	239	1,781	181	57	.029	34.4
5/26	133	319	2,530	151	70	.026	38.3
5/31	79	177	2,302	44	49	.036	27.5
6/1	99	226	1,655	117	55	.031	32.2
6/7	98	219	1,273	168	60	.042	24.0
6/8	<u>129</u>	<u>301</u>	<u>2,162</u>	<u>223</u>	<u>88</u>	<u>.036</u>	<u>27.1</u>
Totals	734	1,725	13,294	1,069	448	.034	29.8

* Includes total hours fished.

Table 9. Boat and chinook harvest percentages by area during the Ketchikan King Salmon Derby, 1980.

Area	May				June			Average
	24	25	26	31	1	7	8	
I	0	1.6	3.3	0.9	0.8	2.2	8.1	2.7
II	57.0	57.9	49.7	48.1	43.6	65.4	59.0	54.6
III	43.0	40.5	47.0	51.0	55.6	32.4	32.9	42.7
I	0	1.8	7.3	0	1.8	3.1	8.2	3.4
II	46.9	50.9	41.2	37.2	32.7	64.6	39.3	45.3
III	53.1	47.3	51.5	62.8	65.5	32.3	52.5	51.3
I	0	2.00:1	1.00:1	1.00:0	1.00:1	1.50:1	2.60:1	1.79:1
II	2.0:1	2.50:1	2.71:1	3.13:1	3.06:1	2.18:1	3.96:1	2.68:1
III	1.35:1	1.88:1	2.06:1	1.96:1	1.94:1	2.10:1	1.66:1	1.85:1

Seasonal Coho Salmon

Coho are a late run salmon. Therefore, angler interviews were extended this year through September 14. The 2 weeks in September provided the largest coho salmon CPUE for the season (Table 10), thus supporting the need for extending the project from the end of August to mid-September. Comparing this year's CPUE of .026 to last year's average of .008, 1980 was far more productive. In addition, the largest bi-weekly CPUE of .37 occurred this year. Removing the 2 weeks' of September data from the annual coho harvest brings the CPUE more in line with the other years but still above the mean for past years.

Table 10. Trend analysis for sport caught coho salmon from the Ketchikan Marine Harvest Program, 1967-1980.

Annual Catch Estimates

	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1977</u>	<u>1979</u>	<u>1980</u>
	5/15- 8/20	5/20- 8/25	5/19- 8/24	5/25- 8/30	5/17- 9/5	5/22- 6/4*	5/14- 9/2	5/15- 9/3	5/15- 8/31	5/16- 9/4
Boats	4,089	3,319	4,151	1,488	6,764	...	7,924	15,453	10,290	13,688
Anglers	7,281	8,259	10,378	3,486	17,130	1,967	19,925	36,906	23,358	30,907
Hours	55,737	57,008	70,954	26,127	148,718	17,175	52,877	204,974	131,104	180,806
Coho	86	1,303	153	127	828	405	1,075	1,459	1,050	4,764
CPUE	.002	.023	.002	.005	.006	.024	.020	.007	.008	.026

Largest Bi-Weekly CPUE*

	8/7- 8/20	7/15- 7/28	8/11- 8/24	7/16- 7/19-	8/9- 8/22-	7/31- 8/13	7/9- 7/22	8/21- 9/3	8/19- 8/31	8/25- 9/7
Boats	18	23	19	33	25	12	29	106	229	170
Anglers	50	57	44	76	67	30	76	217	496	347
Hours	281	282	210	467	356	127	368	951	2,841	2,038
Coho	6	36	10	25	23	95	40	50	84	280
CPUE	.021	.128	.048	.054	.065	.748	.109	.053	.030	.137

* Information from raw data summary and not expanded.

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